

What is claimed is:

1. An Internet protocol network alternate routing system comprising an extension telephone, a plurality of networks provided with one Internet protocol network for transmitting voice signals from said extension telephone, and an exchange for controlling connections between said extension telephone and said plurality of networks;

wherein said exchange, upon detecting a state of congestion of said Internet protocol network, automatically switches a network that is connected with said extension telephone to a network other than said Internet protocol network.

2. An Internet protocol network alternate routing system according to claim 1, wherein said exchange comprises:

a plurality of signal paths for connecting said plurality of networks with said extension telephone;

an alternate routing control unit for determining a network that is to be connected with said extension telephone;

a call control unit for establishing a link between a network that has been determined by said alternate routing control unit and said extension telephone;

a traffic control unit for detecting a state

of congestion of a network for which a link has been
15 established by said call control unit; and
a switch control unit for controlling a
connection between said extension telephone and a signal
path among said plurality of signal paths that is
connected to a network, based on detection results in
20 said traffic control unit.

3. An Internet protocol network alternate routing
system according to claim 2, wherein said exchange
comprises:

a voice converter that, when a link has been
established with a partner node by said call control unit
and voice signals are transmitted from said extension
telephone by way of said switch control unit, converts
the transmitted voice signals to packets, assigns port
numbers to each of the packet voice signals, and outputs
10 the voice signals;

wherein said traffic control unit adds
Internet protocol addresses that are outputted from said
call control unit to voice signals outputted from said
voice converter to generate and output Internet protocol
15 packets;

and said exchange further comprises:

an RTP (Real-time Transport Protocol) unit for
adding RTP headers to Internet protocol packets outputted

from said traffic control unit and outputting the
20 Internet protocol packets; and
a network driver for transmitting on said
Internet protocol network Internet protocol packets to
which RTP headers have been added and that have been
outputted from said RTP unit.

4. An Internet protocol network alternate routing
system according to claim 3, wherein:

5 said RTP unit, in a case in which Internet
protocol packets to which RTP headers have been added are
transmitted from said Internet protocol network, removes
the RTP headers and outputs Internet protocol packets to
said traffic control unit;

10 said traffic control unit converts Internet
protocol addresses contained in Internet protocol packets
that are outputted from said RTP unit to port numbers of
ports in said voice converter, and outputs each of
Internet protocol packets that are assigned by port in
said voice converter to a respective port in said voice
converter; and

15 said voice converter converts Internet
protocol packets that are outputted from said traffic
control unit to voice signals, reconfigures converted
voice signals, and transmits to said extension telephone
by way of said switch control unit.

5. An Internet protocol network alternate routing system according to claim 2 wherein:

said traffic control unit detects a packet loss rate that is contained in a sender report packet that is transmitted from said Internet protocol network and notifies said call control unit that said packet loss rate has exceeded a predetermined set value if said packet loss rate exceeds the set value; and

said call control unit is provided with a counter in which a count value is incremented with each notification from said traffic control unit that said packet loss rate has exceeded a set value, and [said call control unit] does not establish a link between said Internet protocol network and said extension telephone if the count value exceeds a predetermined set value.

6. An Internet protocol network alternate routing system according to claim 3 wherein:

said traffic control unit detects a packet loss rate that is contained in a sender report packet that is transmitted from said Internet protocol network and notifies said call control unit that said packet loss rate has exceeded a predetermined set value if said packet loss rate exceeds the set value; and

said call control unit is provided with a

10 counter in which a count value is incremented with each
notification from said traffic control unit that said
packet loss rate has exceeded a set value, and [said call
control unit] does not establish a link between said
Internet protocol network and said extension telephone if
15 the count value exceeds a predetermined set value.

7. An Internet protocol network alternate routing
system according to claim 4 wherein:

said traffic control unit detects a packet
loss rate that is contained in a sender report packet
that is transmitted from said Internet protocol network
and notifies said call control unit that said packet loss
rate has exceeded a predetermined set value if said
packet loss rate exceeds the set value; and

said call control unit is provided with a
10 counter in which a count value is incremented with each
notification from said traffic control unit that said
packet loss rate has exceeded a set value, and [said call
control unit] does not establish a link between said
Internet protocol network and said extension telephone if
15 the count value exceeds a predetermined set value.

8. An Internet protocol network alternate routing
system according to claim 5 wherein the packet loss rate
in said sender report packet is variable.

9. An Internet protocol network alternate routing system according to claim 6 wherein the packet loss rate in said sender report packet is variable.

10. An Internet protocol network alternate routing system according to claim 7 wherein the packet loss rate in said sender report packet is variable.

11. An Internet protocol network alternate routing system according to claim 2 wherein said switch control unit can be manually switched.

12. An Internet protocol network alternate routing system according to claim 3 wherein said switch control unit can be manually switched.

13. An Internet protocol network alternate routing system according to claim 4 wherein said switch control unit can be manually switched.

14. An Internet protocol network alternate routing system according to claim 5 wherein said switch control unit can be manually switched.

15. An Internet protocol network alternate routing

system according to claim 6 wherein said switch control unit can be manually switched.

16. An Internet protocol network alternate routing system according to claim 7 wherein said switch control unit can be manually switched.

17. An Internet protocol network alternate routing system according to claim 8 wherein said switch control unit can be manually switched.

18. An Internet protocol network alternate routing system according to claim 9 wherein said switch control unit can be manually switched.

19. An Internet protocol network alternate routing system according to claim 10 wherein said switch control unit can be manually switched.

20. An Internet protocol network alternate routing system according to claim 11 further comprising an announcement trunk for reporting switching of said signal path to said extension telephone when a network
5 determined by said alternate routing control unit is in a congested state.

21. An Internet protocol network alternate routing system according to claim 12 further comprising an announcement trunk for reporting switching of said signal path to said extension telephone when a network determined by said alternate routing control unit is in a congested state.

22. An Internet protocol network alternate routing system according to claim 13 further comprising an announcement trunk for reporting switching of said signal path to said extension telephone when a network determined by said alternate routing control unit is in a congested state.

23. An Internet protocol network alternate routing system according to claim 14 further comprising an announcement trunk for reporting switching of said signal path to said extension telephone when a network determined by said alternate routing control unit is in a congested state.

24. An Internet protocol network alternate routing system according to claim 15 further comprising an announcement trunk for reporting switching of said signal path to said extension telephone when a network determined by said alternate routing control unit is in a

path to said extension telephone when a network
5 determined by said alternate routing control unit is in a
congested state.

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